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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,497	01/10/2002	Sang-sik Kim	SAM-0269	9272

7590 03/24/2004

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EXAMINER

VARGOT, MATHIEU D

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,497

Applicant(s)

KIM, SANG-SIK

Examiner

Mathieu D. Vargot

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/4/03</u> . | 6) <input type="checkbox"/> Other: ____. |

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Kokai 3-152,973 (see abstract and Figure 1).

The applied reference discloses the instant method for manufacturing a solid state image pick-up or sensing device having microlenses wherein photosensing device arrays and microlenses are formed on a semiconductor substrate and the microlenses are hardened by irradiating UV or far (ie, deep) UV into them. The forming steps for the photosensing devices as set forth in instant claim 5 are submitted to be met in the process of the applied reference, since Figure 1 therein shows all the features (and hence steps) required in instant claim 5. The forming of the optical diodes is seen in the depiction of the p-n semiconductor junctions, which typically function as optical diodes. Also, although not explicitly shown, the step of forming pads on portions of the insulating film is submitted to have been inherent in order to allow for communication in and out of the solid state image sensor. The planarizing films and microlenses are made of organic materials and the microlenses are formed on light receiving portions using the instant steps of exposing and developing a photoresist followed by a thermal treatment for curving the microlenses—see the abstract.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 6 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Kokai 3-152,973.

Japanese -973 discloses the basic claimed method as set forth in paragraph 1, supra, the applied reference essentially lacking the aspects of the exact hardness for the microlenses, exact energy applied thereto to harden them and a clear showing of using color filters. It is submitted that the first two aspects would have been obvious modifications to the process of the applied reference dependent on exact hardness desired for the microlenses. Japanese -973 clearly uses deep/far UV to harden the microlenses and the exact amount of energy and degree of hardening would have been result effective variables readily determined through routine experimentation. It is rather conventional in the art to employ color filters in these devices to prevent stray light from interfering and one of ordinary skill in the art would have found their incorporation into the method of Japanese -973 as obvious for this reason.

3. Claims 11, 12, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Kokai 3-152,973 in view of Japanese Kokai 4-12568 (see abstract).

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Japanese -973 discloses the basic claimed method as set forth in paragraph 1, supra, the applied reference essentially lacking the aspects of the step of applying UV to the microlenses between the forming of the lens pattern and thermal curving as recited in instant claims 11, 12, 21 and 22. As shown by Japanese -568, the UV application as set forth in these claims is well known in the solid state image device making art as a method of bleaching polymers used as resists and such would have been an obvious step in the process of Kokai -973 for this reason.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Japanese Patent 7-268,177 discloses curing microlens arrays by applying UV light thereto and teaches that the hardness of the lenses would be a "pencil hardness" of HB or lower.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mathieu D. Vargot whose telephone number is 571 272-1211. The examiner can normally be reached on Mon-Fri from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni, can be reached on 571 227-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.


Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

M. Vargot
March 18, 2004


Mathieu D. Vargot
Primary Examiner
Art Unit 1732

3/18/04